U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-258 096

Installation of Air Quality Data Handling Subsystem in the Commonwealth of Virginia

IBM Federal Systems Div, Gaithersburg, Md

Prepared for

Environmental Protection Agency, Philadelphia, Pa Region III

Aug 76

282036

PB 258 096

U.S. ENVIRONMENTAL PROTECTION AGENCY

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

MIDDLE ATLANTIC REGION-III 6th and Walnut Streets, Philadelphia, Pennsylvania 19106

EPA 903/9-76-026

INSTALLATION OF AIR QUALITY DATA HANDLING SUBSYSTEM in the Commonwealth of Virginia

FINAL REPORT

AUGUST 1976

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO. 903/9-76-026	2.
3. RECIPIENT'S ACCESSION NO. 903/9-76-026	
4. TITLE AND SUBTITLE Installation of Air Quality Data Handling Subsystem of the Comprehensive Data Handling System in the Commonwealth of Virginia	5. REPORT DATE August, 1976
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) IBM Corporation	8. PERFORMING ORGANIZATION REPORT NO None
9. PERFORMING ORGANIZATION NAME AND ADDRESS The IBM Corporation Federal System Division 18100 Frederick Pike Gaithersburg, MD 20760	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO. 68-02-1379 Task Order 9
12. SPONSORING AGENCY NAME AND ADDRESS U.S. E. P. A. Air and Hazardous Materials Division 6th & Walnut Streets Philadelphia, Pa. 19106	13. TYPE OF REPORT AND PERIOD COVERED Final January - August, 1976
	14. SPONSORING AGENCY CODE EPAL (3A)
15. SUPPLEMENTARY NOTES	

16. ABSTRACT

Process and procedures used to install the air quality data handling subsystem (AQDHS-II) an a computer in the Commonwealth of Virginia.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Air Quality Data Computer Programs, Air Pollution		

PRICES SUBJECT TO CHANGE

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report)	21. NO. OF PAGES
Release Unlimited	None	244
	20. SECURITY CLASS (This page) None	22. PRICE 3.50-3.00

EPA Form 2220-1 (9-73)

EPA 903/9-76-026

INSTALLATION OF

Air Quality Data Handling Subsystem (AQDHS-II)

of the

Comprehensive Data Handling System

in the

Commonwealth of Virginia

by

The IBM Corporation
Federal Systems Division
18100 Frederick Pike
Gaithersburg, MD 20760

CONTRACT NO. 68-02-1379 TASK ORDER 9

FINAL REPORT

Prepared for

Environmental Protection Agency

Region III

Air and Hazardous Materials Division

Philadelphia, Pa. 19106

AUGUST, 1976

2

This air pollution report is issued by Philadelphia Regional Office, Environmental Protection Agency, to assist state and local air pollution control agencies in carrying out their program activities. Copies of this report may be obtained, for a nominal cost, from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22151.

This report was furnished to the Environmental Protection Agency by the IBM Corporation, Gaithersburg, MD in fulfillment of EPA contract number 68-02-1379 Task Order 9. This report has been reviewed by the Air and Hazardous Materials Division, EPA and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Region III Publication No. EPA 903/9-76-026

Final Report

Installation

Task Order Number 9

by

The IBM Corporation
Federal System Division
18100 Frederick Pike
Gaithersburg, Maryland 20760

Contract No. 68-02-1379

EPA Project Officer: A. W. Marks

4

1. General

This report covers all work accomplished by IBM under Contract Number 68-02-1379, Task Order Number 9. The purpose of the task was to implement the Air Quality Data Handling Subsystem (AQDHS) of the Comprehensive Data Handling System (CDHS) at the computer installation designated by the agency and to which the agency had established access. Within the reporting tasks per the weekly reports, as each task was completed, a summary was prepared to clearly document the objectives of the activities, the approach taken, the techniques used, the results and reference to previous notes. Thus, material for the final report evolved throughout the performance period. This technique has facilitated presentation of periodic progress reports and preparation of the final report. Therefore, this final report will consist of two parts, the first briefly highlights and describes procedures used in this implementation during the performance period, and the second contains all reports which describe in detail all activities, problems and solutions.

2. Task Definition

In order to perform the activities necessary to accomplish the objectives of the task order as stated in the statement of work, the following tasks were defined: (1) Project definition; (2) Installation; (3) Operational Support; (4) Training; and (5) Reporting; and were monitored with respect to progress, problems, plans and cost.

3. Project Definition

Kick-off Meeting

A meeting was held in Washington, D.C., on January 13, 1976 for introduction of responsible personnel from Region III of Environmental Protection Agency and Federal system Division personnel responsible for contract performance and to discuss the statement of work. After a thorough review of the statement of work, installation requirements and tentative performance dates, a schedule was established for installation and training activities.

4. Installation and Training

Within this task, subtasks were defined, namely, Preinstallation, Installation, Post Installation, Pre-training, Training and Post Training. Activities contained and implemented via these subtasks are listed below.

SUBSYSTEM INSTALLATION

Pre-Installation Preparation

1. Telephonic Contact To:
   - Coordinate installation date
   - Establish agency/contractor contact for Data Base
   - Determine equipment configuration
   - Determine computer resources to be allocated to the subsystem
   - Determine local conventions relative to JCL (or equivalent) and special program, procedure and data set naming conventions
   - Determine peculiarities of computer, operating system, or computers which might require programming changes to the subsystem.

2. Revise JCL to conform to local conventions or prepare new control statements as required and perform detailed desk check of result.

3. Perform checkout of revised JCL (or equivalent) contractors computer (or using leased time). This step may be postponed until installation.

4. Revise program, if required, and test and document. Some or all of this step may necessarily be postponed until installation depending on type of program changes needed.

5. Assemble installation tape.

6. Test installation tape by simulating installation to the extent possible on contractors computer.

INSTALLATION

1. Check out JCL (or equivalent)
2. Check out revised programs, if any
3. Compile all programs
4. Catalogue (or equivalent) all JCL procedures (or equivalent)
5. Catalogue (or equivalent) source, object and load modules
6. Perform acceptance demonstrations per Installation and Test Guideline
7. Generate internal tables from agency provided data
8. Generate initial data base from agency provided data
9. Prepare tape copy of installed system

10. Collect and pack hard copy of installed subsystem.

7

POST INSTALLATION

1. Prepare and report changes to program documentation necessitated by installation.

2. Coordinate with instructors so that special adaptations are included in course material.

3. Annotate and file base copy.

4. File tape copy.

5. Prepare installation report.

APPLICATION/OPERATION TRAINING

PREPARATION

1. Revise training material to coincide with changes made for installation.

2. Coordinate with agency to establish course schedule, special topics and number of students.

3. Prepare course material for special topics.

CONDUCT TRAINING

1. Document special topics and/or problems that arose during training.

2. Document special problems encountered with course or program documentation or subsystem capabilities.

3. Prepare training report for EPA.

4. Revise course material as required.

The training was presented according to the Training Program Outlines and tentative schedules which follow.

AQDHS-II TRAINING SCHEDULE
(Tentative)

TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9:00 AM Overview	Transaction Edit	Retrieval General	Reports
10:00 AM	File Update		SAROAD
11:00 AM File Maintenance	Old AQDHS File		Statistical
12:00 PM Lunch	Lunch	Lunch	Lunch
1:00 Tables	SAROAD & OLD AQDHS Input	AQDHS-II Retrieval Language	Detail List Sliding Average Review
2:00 PM Site Code	AQDHS-II Input		
3:00 PM Parameter Code Parameter Standard		Copied COBOL Inline COBOL	Conference
3:45 PM Review	Review	Review	

1 OVERVIEW
1.1 AQDHS-II Status
1.2 Design Overview
1.3 AQDHS-II Overview
1.4 AQDHS-II Functional Flow
1.5 How to Use AQDHS-II - Use of JCL to Invoke Cataloged Procedures

2 FILE MAINTENANCE
2.1 AQDHS-II FILES and Tables
2.2 File Change Concept
2.3 File and Table Names

3 AQDHS-II
3.1 Use to Edit Input and Prepare Report Headings
3.2 Table Contents - Diagnostic or Utility

4 SITE CODE TABLE
4.1 Functional Flow
4.2 Table Creation
4.3 Table Maintenance - Add, Change, Delete
4.5 Examples
4.6 Diagnostic Messages

5 PARAMETER CODE TABLE
5.1 Functional Flow
5.2 Table Creation
5.3 Table Maintenance - Add, Change, Delete
5.4 Table Maintenance - Potential Problems
5.5 Table Overflow
5.6 Examples
5.7 Table in AQDHS-II
5.8 Diagnostic Messages

6 PARAMETER STANDARD TABLE
6.1 Functional Flow
6.2 Table Creation
6.3 Table Maintenance - Add, Change, Delete
6.4 Examples
6.5 Table in AQDHS-II
6.6 Diagnostic Message

7 REVIEW

8 FILE MAINTENANCE
8.1 Functional Flow
8.1.1 Transaction Edit
8.1.2 File Update
8.2 AQDHS-II Master File Record
8.3 Transaction Edit

8.4 File Creation
8.5 File Update
8.6 Examples - General
8.7 File Update Diagnostic Messages
8.8 Transaction Edit Diagnostic Message

9 CONVERT OLD AQDHS FILE
9.1 Functional Flow - Conversion
9.2 Use with File Update Procedure
9.3 Diagnostic Messages

10 SAROAD AND OLD AQDHS MANUAL INPUT
10.1 Functional Flow
10.2 Use With Transaction Edit
10.3 Use With File Update
10.4 Suppressing Conversion Diagnostic Messages
10.5 Examples
10.6 Diagnostic Messages
10.7 Option to Continue Using as Input
10.8 Action Cards

11 AQDHS-II MANUAL INPUT
11.1 No Need for Separate Procedure
11.2 Use With Transaction Edit
11.3 Use With File Update
11.4 AQDHS-II Input Load Sheets
11.5 Option to Change to AQDHS-II Input

12 REVIEW

13 RETRIEVAL
13.1 Functional Flow
13.2 Retrieval Options
13.2.1 AQDHS-II Retrieval Language
13.2.2 COBOL - Need for COBOL Expertise
13.3 Select Statement Structure
13.4 Retrieval Logic

14 AQDHS-II RETRIEVAL LANGUAGE
14.1 Retrieve on any Field in Master File Record
14.2 Subject and Object Name
14.3 Examples
14.4 Repeating Data Names in Compound Select Statements

15 COPIED COBOL AND IN-LINE COBOL
15.1 Need to Have COBOL Expertise
15.2 Available if Needed

16 REVIEW

17 QUARTERLY SAROAD REPORT
17.1 Functional Flow

17.2 Examples

18 STATISTICAL REPORT
18.1 Functional Flow
18.1.1 Master File Flagging
18.1.2 Parameter Code File Flagging
18.1.3 Data Analysis
18.1.4 Statistical Report Formatting
18.2 Report Options
18.3 Statistical Analyses Performed
18.4 Sample Reports
18.5 Diagnostic Messages
18.6 Limitations

19 DETAIL LIST REPORT
19.1 Functional Flow
19.2 Options
19.3 Sample Reports
19.4 Diagnostic Messages

20 SLIDING AVERAGE REPORT
20.1 Functional Flow
20.2 Options
20.3 Sample Reports
20.4 Diagnostic Messages
20.5 Limitations

5. Operational Support

Consultation was given to states pe telephone inquiries in resolution of problems. Discovered problems were corrected, documented and mailed to the EPA development group.

6. Conclusions

The above summary of tasks used to implement Task Order Number Ten addressed all items within the statement of work.

A more detail description of activities problems and solutions are contained in the following reports.

International Business Machines Corporation

18100 Frederick Pike
Gaithersburg, Maryland 20760

January 26, 1976

Mr. A. W. Marks
USEPA Region III
6th and Walnut Street
Philadelphia, Pennsylvania 19106

Dear Mr. Marks:

Pre-installation activities were completed week ending Janauary 23, 1976, in support of the AQMIS-II installation task order for EPA in the Commonwealth of Virginia.

Installation will commence as scifeduled, January 26, 1976.

Sincerely,

R. M. Williams

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
6th AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106
JAN 26 1976

SUBJECT: EOA #68-02-1379, Order Number 9, Contractor: IBM Corporation, DU-75-C323

Mr. Russell H. Williams
IBM Corporation
18100 Frederick Pike
Gaithersburg, Maryland 20760

Mr. Henry Hughes
State Air Pollution Control Board
Room 1106, Ninth Street Office Building
Richmond, Virginia 23219

Dear Messrs Williams and Hughes:

I. Summary

This memorandum will formalize the results of a meeting held on January 13, 1976 at EPA Headquarters, 4th and M Sts., S.W., Washington, D.C. Attendees at the meeting were:

EPA	IBM	Commonwealth of Va.
Mrs. S. Chappell	Mr. R. Williams	Mr. H. Hughes
Mr. A. W. Marks	Mr. J. Jacobson	

The purpose of the meeting was to:

1. Define Scope of Work in detail, and to ensure that all three parties have the same understanding.

2. Establish a schedule of implementation.

In summary, all parties agreed with EPA's definition of responsibilities and methods of operation.

II. Definition of Scope of Work

TASK I - Site Visit

1. Virginia will:

a. Supply IBM with a computer user's manual and such other

documentation as necessary to familiarize IBM with the computer operating environment. This information will include job control language (JCL) conventions, unit designations for permanent and temporary storage, equipment designations, etc.

b. Current versions of COBOL, the operating system, and any other required computer programs.

c. Procedure for obtaining reserved tapes and disk packs.

d. Name a prime contact who will be the interface between IBM and the Virginia computer center. This individual should be conversant in the computer center operating environment.

NOTE: Mr. Hughes stated that Mr. R. Stowbridge will serve as the IBM contact.

TASK 2 - Installation

1. EPA will:

a. Supply computer programs, sample test data, sample test programs, etc., as provided by the National Air Data Branch (NADB), Research Triangle Park, N.C. to IBM.

b. Provide Virginia with test results.

2. IBM will:

a. Install AQDHS-II, Update 12.

NOTE: AQDHS-II, Update 10 was given to IBM. IBM assumed responsibility to obtain Updates 11 and 12 from NADB in time to meet the installation schedule.

b. Run test cases as furnished by EPA.

c. Program errors will NOT be fixed; see TASK 8.

3. Virginia

a. Analyze the test results executed by IBM and compare those with the results furnished by EPA. Discrepancies are to be analyzed with IBM to ensure a satisfactory installation.

TASK 3 - SAROAD Data Base

1. EPA

a. Will supply a SAROAD data base in machine readable form.

2. IBM

a. Will utilize the SAROAD data base furnished by EPA and install it.

b. Program errors or data base errors in material furnished by EPA are NOT to be fixed; see TASK 8.

3. Virginia

a. Will furnish the up-date data to be used in Task 4.

TASK 4 - Simulated Up-date Cycles

1. IBM

a. Will operate the three simulated up-date cycles in concert with designated Virginia personnel. This will permit Virginia personnel to achieve operational familiarity prior to actual or "live" operation.

b. Program errors are NOT to be fixed; see TASK 8.

2. Virginia

a. Will verify the accuracy of each up-date cycle prior to the beginning of the next up-date cycle. The results of each update cycle must be verified as acceptable prior to initiating subsequent cycles.

TASKS 6 and 10 - Training

1. EPA

a. Will authorize training to begin only after Tasks 1-4 have been completed.

b. Will review training material prior to initiating training.

2. IBM

a. Will supply an orientation workbook containing site specific information.

b. Will supply own material for a reasonable number of students.

TASK 7 - Keypunching

1. IBM

a. Will perform own keypunching

TASK 8 - Program/SAROAD data base Errors

1. IBM

a. Will NOT fix errors in programs/data furnished by EPA. These will be documented, and forward to the individual designated in Task 8.

b. All activity on the Task Order will cease immediately after forwarding the necessary documentation as outlined above.

c. After any errors have been corrected by NADB, and those corrections received by IBM, installation will continue as soon as practical. IBM will make every effort to restart installation within one month after notification by the EPA project officer.

2. EPA

a. Will authorize continuance after program/data has been fixed by NADB.

b. Will expedite the fixing of any errors in EPA furnished programs/data. The average time required to correct errors is three weeks.

TASK 9 - JCL Changes

1. IBM

a. Will document any necessary changes, and make them available to the project officer.

TASK 5 - On Call

1. Virginia will

a. Notify IBM a minimum of three weeks in advance for any assistance during a semi-annual reporting period. The following will be supplied to IBM:

- expected start date
- duration of assistance
- amount of assistance requested

b. Notify IBM immediately of any problems that requires IBM assistance.

c. Notify EPA of problems and semi-annual cycle.

2. EPA will

a. Respond in a timely manner with requests for assistance.

III. Schedule

IBM offered the following schedule:

January 26-30	-	Installation of the AQDHS-II system
February 2-6	-	Three Simulated Up-date cycles and bringing SAROAD data base on-line
February 9-13	-	Training preparation
February 16-20	-	Training

This proposed schedule was accepted subject to the definition of scope of work as outlined in the previous section.

IV. Miscellaneous

1. The weekly report as described in item number 11, Reports shall consist of a verbal report on Monday afternoon. This will be followed by a more detailed written report.

Sincerely,

A..W. Marks
Computer Systems Analyst
ADP Management Branch

cc: Attendees
Mrs. C. S. Atamanchuk, NCC (M-7)
Mr. H. Cole, IBM Corporation
Mr. L. Felleisen, EPA, Region III

February 2, 1976

Mr. A. W. Marks
U. S. Environmental Protection Agency
Region III
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Marks:

Subject: EOA 68-02-1379, Task Order Number 9

Installation of the AQDHS-II subsystem was completed January 30, 1976.

Per telephone conversation with you and Mr. Hughes, it is agreed that the training class schedule will be changed. Thus class will start February 17, 1976, and end February 20, 1976. These adjustments have worked in the past and I do not anticipate reduction of subject matter.

The approximate total expenditure through week ending January 23, 1976, is $2,067.

Sincerely,

R. M. Williams, Jr.

International Business Machines Corporation

18100 Frederick Pike
Gaithersburg, Md. 20760

February 23, 1976

Mr. A. W. Marks
U.S. Environmental Protection Agency
Region III
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Marks:

Subject: BOA #68-02-1379, Task Order Number 9

Training on the AQDHS-II subsystem was complete on February 20, 1976. The Virginia data base is not yet complete. The SAROAD transaction tape, from which the master file will be generated, contains 147,000 records representing history going back to 1960. The user has decided that he is interested in data from about 1970 to the present. He plans to reproduce the tape, stripping the unwanted data using a utility program provided by the computer center (TAPS). He must also re-load his Site Code and Parameter Code Tables, augmenting them with site and parameter codes which it has been established were missing when we first attempted to bring him on line with his SAROAD data. With the shortened version of the SAROAD tape and his tables re-loaded, he will then be in a position to convert the SAROAD transactions to the new AQDHS-II format and build his master file.

The approximate total expenditure through week ending February 20, 1976 is $7,114.00.

Sincerely

M. A. O'Hara, Jr.

MAO:dc